

REMARKS

Applicant respectfully requests further examination and reconsideration in view of the comments set forth fully below. Claims 1-45 were pending. Within the previous Office Action, Claims 1-45 have been rejected. By the above amendments, new Claims 46 and 47 have been added. Accordingly, Claims 1-47 are currently pending.

Rejections under 35 U.S.C. § 103(a)

Within the previous Office Action, Claims 1-18, 20-27, 29-36 and 38-44 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0078161 to Cheng (hereinafter “Cheng”) in view of U.S. Patent Application Publication No. 2005/0044355 to Cheshire (hereinafter “Cheshire”). Applicant respectfully disagrees.

Cheng is directed to a UPnP enabling device for heterogenous networks of slave devices. Cheng teaches that the bridging device couples an IP (Internet Protocol) network to one or more non-IP networks, in order to facilitate the control of non-UPnP (Universal Plug and Play devices) by a UPnP controller on the IP network. [Cheng, Abstract] Cheng teaches that each of the non-IP networks may employ different technologies, such as USB, Bluetooth, HAVi, Home API, Home RF, X-10 and Jini. [Cheng, Abstract] Cheng further teaches that the bridging device includes enabling logic to support the UPnP addressing, discovery, and description processes for each of the devices on the non-IP network. [Cheng, Abstract] Cheng does not teach communicating with a rendezvous device. As is recognized within the previous Office Action, Cheng does not teach communicating with a rendezvous device that uses a rendezvous type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. Further, Cheng does not teach a bridging device which bridges between a UPnP device and a rendezvous device. Cheng teaches bridging between an IP network and a non-IP network.

Cheshire teaches a network of devices including several computer systems, printers and a scanner which are connected through a network such as the Internet. The devices on the network adhere to a plug-and-play protocol such as Apple Computer’s Rendezvous technology. [Cheshire, Paragraphs 25-27 and Figure 1] However, as is described below, it is improper to combine Cheshire and Cheng.

Within the MPEP it is stated, “[i]t is improper to combine references where the references teach away from their combination.” In re Grasselli, 713 F.2d, 743 (Fed. Cir. 1983); MPEP § 2145 (X)(D)(2). Here, Cheng specifically teaches away from a rendezvous type protocol

utilizing Internet Protocol. As described above, Cheng teaches that the bridging device includes enabling logic to support the UPnP addressing, discovery, and description processes for each of the devices on the non-IP network. [Cheng, Abstract] In fact, the main purpose of Cheng is to bridge devices in an IP network to one or more non-IP networks. Therefore, combining Cheng with any reference to achieve the present invention, such as Cheshire, is improper.

Within the previous Office Action, it is asserted that Cheng does not teach away from a rendezvous type protocol utilizing Internet Protocol because “[Cheng] recognizes that communication standards are constantly being developed, and that the types of networks used in the future were likely to differ (¶5).” [Office Action, page 3] In other words, it is asserted within the previous Office Action that Cheng anticipated the development of new types of networks and was designed to provide a bridge between them and a UPnP’s IP network. However, this cited text only further emphasizes what was described above; Cheng is designed to bridge between networks that differ, not networks that are the same. Furthermore, if one reads beyond the cited paragraph into paragraphs 6 and 7 of Cheng, it is made fully clear that paragraph 5 is in reference to different networks not the same type of network as a UPnP device. Specifically, after describing the need for different networks due to their various advantages and disadvantages in paragraph 6, Cheng summarizes in paragraph 7 stating that “[t]he advantages and disadvantages of each networking solution are likely to result in a variety of networks ... [thus,] there is an [ever] increasing need for devices and systems that provide a bridge between and among such heterogenous networks.” [Cheng, ¶7] Thus, again, the key is bridging between different networks, not networks that are the same.

Moreover, throughout Cheng, all the networks described with which the bridge operates were non-IP networks (i.e. different than the UPnP IP network) and specifically referred to as “non-IP networks.” Why does Cheng make this differentiation? If the purpose of Cheng was merely to bridge to any type of network, including the same type of network, this differentiating language would be unnecessary. This language is not superfluous. By consistently referring to the other networks as “non-IP networks,” even when speaking generally, Cheng is further demonstrating that its purpose is to bridge to different networks, not the same type of network. As a result, it is readily apparent that Cheng teaches away from a rendezvous type protocol utilizing Internet Protocol as is taught by Cheshire or any similar reference. Accordingly, the combination of Cheng and Cheshire or any similar reference is improper.

In contrast to the teachings of Cheng, Cheshire and their combination, the bridging method and apparatus of the present invention, bridges a UPnP network with a rendezvous

network. As taught within the present specification, “[t]he rendezvous protocol utilizes the standard IP networking protocol to enable networking and service discovery.” [Present Specification, page 6, lines 19-20] Accordingly, in contrast to the teachings of Cheng, the UPnP network and the rendezvous network are both considered IP networks. The UPnP rendezvous bridge of the present invention appropriately allows device and service discovery and converts communications directed between devices within the UPnP network and devices within the rendezvous network into an appropriate format for the receiving device, utilizing a UPnP proxy, a rendezvous proxy, a UPnP table and a rendezvous table. [Present Specification, Abstract] As described above, the combination of Cheng and Cheshire is improper. As further described above, Cheng does not teach communicating with a rendezvous device. Further, Cheng does not teach communicating with a rendezvous device that uses a rendezvous type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As also described above, Cheng does not teach a bridging device which bridges between a UPnP device and a rendezvous device. Instead, Cheng teaches bridging between an IP network and a non-IP network. Accordingly, neither Cheng, Cheshire nor their combination teach the presently claimed invention.

The independent Claim 1 is directed to a method of bridging communications between a universal plug and play type device and a rendezvous type device. The method of Claim 1 comprises receiving a communication from the universal plug and play type device for the rendezvous type device, converting the communication into the rendezvous type protocol thereby forming a converted communication and transmitting the converted communication to the rendezvous type device, wherein the rendezvous type protocol utilizes Internet Protocol. As described above, the combination of Cheng and Cheshire is improper. As further described above, Cheng, Cheshire and their combination do not teach converting the communication into the protocol rendezvous type protocol or communicating with a rendezvous device that uses a rendezvous type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As also described above, Cheng, Cheshire and their combination do not teach bridging communications between two IP networks. For at least these reasons, the independent Claim 1 is allowable over the teachings of Cheng, Cheshire and their combination.

Claims 2-5 are all dependent on the independent Claim 1. As described above, the independent Claim 1 is allowable over the teachings of Cheng, Cheshire and their combination. Accordingly, Claims 2-5 are all also allowable as being dependent on an allowable base claim.

The independent Claim 6 is directed to a method of bridging communications between a rendezvous type device and a universal plug and play type device. The method of Claim 6

comprises receiving a communication from the rendezvous type device for the universal plug and play type device, converting the communication into the universal plug and play type protocol thereby forming a converted communication and transmitting the converted communication to the universal plug and play type device, wherein the rendezvous type device utilizes Internet Protocol. As described above, the combination of Cheng and Cheshire is improper. As further described above, Cheng, Cheshire and their combination do not teach converting the communication into the protocol rendezvous type protocol or communicating with a rendezvous device that uses a rendezvous type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As also described above, Cheng, Cheshire and their combination do not teach bridging communications between two IP networks. For at least these reasons, the independent Claim 6 is allowable over the teachings of Cheng, Cheshire and their combination.

Claims 7-10 are all dependent on the independent Claim 6. As described above, the independent Claim 6 is allowable over the teachings of Cheng, Cheshire and their combination. Accordingly, Claims 7-10 are all also allowable as being dependent on an allowable base claim.

The independent Claim 11 is directed to a converter configured to couple between a universal plug and play type device and a rendezvous type device to convert communications between the universal plug and play type device and the rendezvous type device into proper formats. The converter of Claim 11 comprises a universal plug and play type interface circuit configured to couple to a universal plug and play type device operating under a universal plug and play type protocol, a rendezvous type interface circuit configured to couple to a rendezvous type device operating under a rendezvous type protocol and a conversion circuit coupled between the universal plug and play type interface circuit and the rendezvous type interface circuit, wherein the conversion circuit converts communications directed from the universal plug and play type device to the rendezvous type device into the rendezvous type protocol, and further wherein the conversion circuit converts communications directed from the rendezvous type device to the universal plug and play type device into the universal plug and play type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As described above, the combination of Cheng and Cheshire is improper. As further described above, Cheng, Cheshire and their combination do not teach converting the communication into the protocol rendezvous type protocol or communicating with a rendezvous device that uses a rendezvous type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As also described above, Cheng, Cheshire and their combination do not teach bridging communications between two IP networks.

For at least these reasons, the independent Claim 11 is allowable over the teachings of Cheng, Cheshire and their combination.

Claims 12-18 are all dependent on the independent Claim 11. As described above, the independent Claim 11 is allowable over the teachings of Cheng, Cheshire and their combination. Accordingly, Claims 12-18 are all also allowable as being dependent on an allowable base claim.

The independent Claim 20 is directed to a converter configured for coupling between a universal plug and play type device and a rendezvous type device to convert communications between the universal plug and play type device and the rendezvous type device into proper formats. The converter of Claim 20 comprises means for interfacing to a universal plug and play type device configured for coupling to the universal plug and play type device operating under a universal plug and play type protocol, means for interfacing to a rendezvous type device configured for coupling to the rendezvous type device operating under a rendezvous type protocol and means for converting coupled between the means for interfacing to a universal plug and play type device and the means for interfacing to a rendezvous type device, wherein the means for converting converts communications directed from the universal plug and play type device to the rendezvous type device into the rendezvous type protocol, and further wherein the means for converting converts communications directed from the rendezvous type device to the universal plug and play type device into the universal plug and play type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As described above, the combination of Cheng and Cheshire is improper. As further described above, Cheng, Cheshire and their combination do not teach converting the communication into the protocol rendezvous type protocol or communicating with a rendezvous device that uses a rendezvous type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As also described above, Cheng, Cheshire and their combination do not teach bridging communications between two IP networks. For at least these reasons, the independent Claim 20 is allowable over the teachings of Cheng, Cheshire and their combination.

Claims 21-27 are all dependent on the independent Claim 20. As described above, the independent Claim 20 is allowable over the teachings of Cheng, Cheshire and their combination. Accordingly, Claims 21-27 are all also allowable as being dependent on an allowable base claim.

The independent Claim 29 is directed to a bridge device configured for coupling between a universal plug and play type device and a rendezvous type device for converting communications between the universal plug and play type device and the rendezvous type device into proper formats. The bridge device of Claim 29 comprises a universal plug and play type

interface circuit configured for coupling to a universal plug and play type device operating under a universal plug and play type protocol, a rendezvous type interface circuit configured for coupling to a rendezvous type device operating under a rendezvous type protocol and a conversion circuit coupled between the universal plug and play type interface circuit and the rendezvous type interface circuit, wherein the conversion circuit converts communications directed from the universal plug and play type device to the rendezvous type device into the rendezvous type protocol, and further wherein the conversion circuit converts communications directed from the rendezvous type device to the universal plug and play type device into the universal plug and play type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As described above, the combination of Cheng and Cheshire is improper. As further described above, Cheng, Cheshire and their combination do not teach converting the communication into the protocol rendezvous type protocol or communicating with a rendezvous device that uses a rendezvous type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As also described above, Cheng, Cheshire and their combination do not teach bridging communications between two IP networks. For at least these reasons, the independent Claim 29 is allowable over the teachings of Cheng, Cheshire and their combination.

Claims 30-36 are all dependent on the independent Claim 29. As described above, the independent Claim 29 is allowable over the teachings of Cheng, Cheshire and their combination. Accordingly, Claims 30-36 are all also allowable as being dependent on an allowable base claim.

The independent Claim 38 is directed to a network of devices, operating under a plurality of protocols. The network of devices of Claim 38 comprises one or more universal plug and play type devices operating under a universal plug and play type protocol, one or more rendezvous type devices operating under a rendezvous type protocol and a converter coupled to the universal plug and play type devices and the rendezvous type devices for converting communications between the universal plug and play type devices and the rendezvous type devices into proper formats. The converter comprises a universal plug and play type interface circuit coupled to the universal plug and play type devices, a rendezvous type interface circuit coupled to the rendezvous type devices and a conversion circuit coupled to universal plug and play type interface circuit and the rendezvous type interface circuit, wherein the conversion circuit converts communications directed from the universal plug and play type devices to the rendezvous type devices into the rendezvous type protocol, and further wherein the conversion circuit converts communications directed from the rendezvous type devices to the universal plug and play type devices into the universal plug and play type protocol, wherein the rendezvous type protocol

utilizes Internet Protocol. As described above, the combination of Cheng and Cheshire is improper. As further described above, Cheng, Cheshire and their combination do not teach converting the communication into the protocol rendezvous type protocol or communicating with a rendezvous device that uses a rendezvous type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As also described above, Cheng, Cheshire and their combination do not teach bridging communications between two IP networks. For at least these reasons, the independent Claim 38 is allowable over the teachings of Cheng, Cheshire and their combination.

Claims 39-44 are all dependent on the independent Claim 38. As described above, the independent Claim 38 is allowable over the teachings of Cheng, Cheshire and their combination. Accordingly, Claims 39-44 are all also allowable as being dependent on an allowable base claim.

Within the previous Office Action, Claims 19, 28, 37, 44 and 45 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng in view of Cheshire and further in view of U.S. Patent Application Publication No. 2003/0016682 to Cho. Applicant respectfully disagrees.

Claim 19 is dependent on the independent Claim 11. Claim 28 is dependent on the independent Claim 20. Claim 37 is dependent on the independent Claim 29. Claim 44 is dependent on the independent Claim 38. As described above, the independent Claims 11, 20, 29 and 38 are all allowable over the teachings of Cheng, Cheshire and their combination. Accordingly, Claims 19, 28, 37 and 44 are all also allowable as being dependent on an allowable base claim.

Furthermore, Cheng, Cheshire, Cho and their combination do not teach wherein the rendezvous type interface circuit comprises a rendezvous type proxy which maintains a table of entries, each entry corresponding to a universal plug and play type device. As recognized in the Office Action, Cheng and Cheshire each do not teach wherein the rendezvous type interface circuit comprises a rendezvous type proxy which maintains a table of entries, each entry corresponding to a universal plug and play type device. With regard to Cho, within the Office Action it is asserted that paragraph 0042, lines 13-18, teach wherein the rendezvous type interface circuit comprises a rendezvous type proxy which maintains a table of entries, each entry corresponding to a universal plug and play type device. [Office Action, page 15] However, Cho does not teach a rendezvous type proxy which maintains a table of entries, each corresponding to a universal plug and play type device. Instead, Cho teaches a first middleware and a second middleware which each store tables of devices that use only their middleware, meaning the first middleware stores a table of devices that use the first middleware and the second middleware stores a table of devices that use the second middleware. Specifically, Cho states “the HAVI 311

is a middleware ... and the UPNP 315 is a [different] middleware” and “the HAVI 311 and the UPNP 315 periodically retrieve the network, update the lists of devices that use identical middleware and stores the list of devices in the tables 312 and 316.” [Cho, ¶42 lines 10-18] Thus, Cho does not teach the first middleware (HAVI) stores a table of devices that use the second middleware(UPNP), but instead that HAVI stores a table of HAVI devices and UPNP stores a table of UPNP devices. Therefore, Cho does not teach wherein the rendezvous type interface circuit comprises a rendezvous type proxy which maintains a table of entries, each entry corresponding to a universal plug and play type device. Thus, Cheng, Cheshire, Cho and their combination do not teach wherein the rendezvous type interface circuit comprises a rendezvous type proxy which maintains a table of entries, each entry corresponding to a universal plug and play type device. Accordingly, Cheng, Cheshire, Cho and their combination do not teach the present invention.

The independent Claim 45 is directed to a network of devices, operating under a plurality of protocols. The network of devices of Claim 45 comprising one or more universal plug and play type devices operating under a universal plug and play type protocol, one or more rendezvous type devices operating under a rendezvous type protocol and a converter coupled to the universal plug and play type devices and the rendezvous type devices for converting communications between the universal plug and play type devices and the rendezvous type devices into proper formats, comprising a universal plug and play type interface circuit coupled to the universal plug and play type devices, wherein the universal plug and play type interface circuit comprises a universal plug and play type proxy which maintains a table of rendezvous entries, each rendezvous entry corresponding to a rendezvous type device, a rendezvous type interface circuit coupled to the rendezvous type devices, wherein the rendezvous type interface circuit comprises a rendezvous type proxy which maintains a table of universal plug and play entries, each universal plug and play entry corresponding to a universal plug and play type device and a conversion circuit coupled to universal plug and play type interface circuit and the rendezvous type interface circuit, wherein the conversion circuit converts communications directed from the universal plug and play type devices to the rendezvous type devices into the rendezvous type protocol, and further wherein the conversion circuit converts communications directed from the rendezvous type devices to the universal plug and play type devices into the universal plug and play type protocol, wherein a conversion program used by the conversion circuit is stored within the conversion circuit, wherein the conversion circuit is programmed by a universal plug and play type device or a rendezvous type device and wherein the rendezvous type

protocol utilizes Internet Protocol. As described above, the combination of Cheng and Cheshire is improper. As further described above, Cheng, Cheshire and their combination do not teach converting the communication into the protocol rendezvous type protocol or communicating with a rendezvous device that uses a rendezvous type protocol, wherein the rendezvous type protocol utilizes Internet Protocol. As also described above, Cheng, Cheshire and their combination do not teach bridging communications between two IP networks. As even further described above, Cheng, Cheshire, Cho and their combination do not teach wherein the rendezvous type interface circuit comprises a rendezvous type proxy which maintains a table of entries, each entry corresponding to a universal plug and play type device. For at least these reasons, independent Claim 45 is allowable over the teachings of Cheng, Cheshire, Cho and their combination.

For the reasons given above, the Applicants respectfully submit that the pending claims are in condition for allowance, and allowance at an early date would be appreciated. If the Examiner has any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 so that any outstanding issues can be quickly and efficiently resolved.

Respectfully submitted,
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